

Reverse engineering of ancient technologies in glass and glazed ceramic decorations

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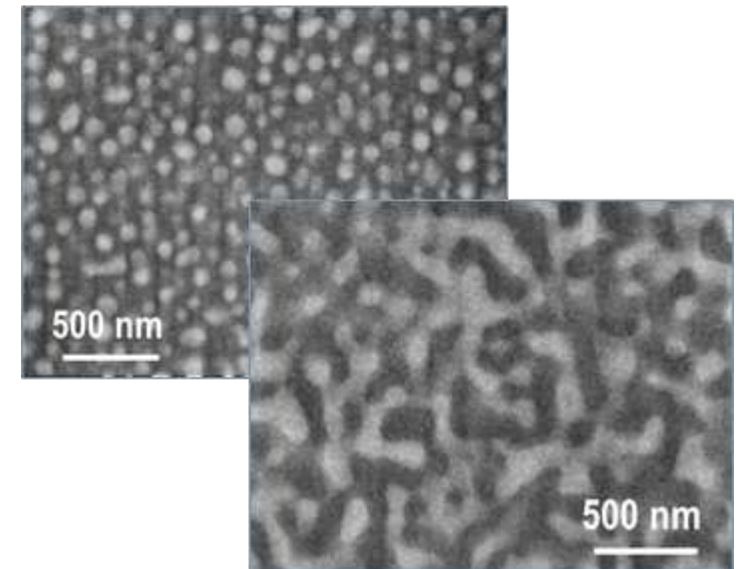
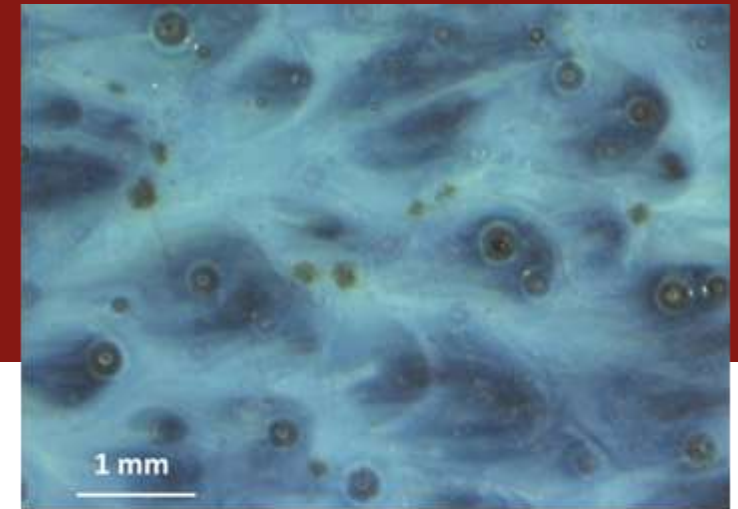
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Trinitat Pradell is full professor in Applied Physics in the Physics Department of the Universitat Politècnica de Catalunya (BarcelonaTech) and belongs to the Materials Characterisation group. Her PhD in the University of Barcelona was devoted to the use of Mössbauer Spectroscopy and X-ray diffraction for the study of ceramics and slips fired under reducing conditions. She has worked for more than 25 years in the study, analysis of Historical and Artistic Materials, with special commitment to the study of glaze and

glass and decorative layers but also to paintings with special insight in the optical properties. Her main interest is the identification of the materials and processes followed in the production of the objects to recover the lost expertise and gain information for the most adequate conservation treatments. Specific sample preparation to allow for minimal invasiveness together with a set of non-destructive microanalytical techniques in combination with replication is her choice for the study micrometric and submicrometric decorative layers.



*Official Jun ware glaze (Jin-Yuan or early Ming dynasty
(12th-14th century AD)*

General talk

In the talk we will present how a reverse engineering approach to the study of historical and artistic materials complemented by replication is able to give a deeper insight in the materials, methods of application and processing procedures, but also of their reactivity, alteration and aging. Generally speaking, the objects required of specific physical properties (thermal, mechanical, optical) to satisfy the purpose for which they were produced (cooking pots, water containers, glass windows, artistic or decorative objects). Consequently, the determination of the physical properties and how they were attained is also basic for understanding the ancient technologies. The main goal is the recovery of the knowledge which is gradually

substituted by modern materials and techniques. The methodology is also valuable in solving historical enquiries about provenance, trade, commercial links, classification and connection. Nevertheless, the information gained gives also often information about the stability of the objects and the most adequate conservation procedures. In the talk will present various examples of study including, lustre technology, stain glass grisailles and Jun glazes.